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WEEKLY REPORT

Heroin Overdose Deaths — Multnomah County, Oregon, 1993–1999

In the United States, heroin use is increasing and was implicated in 3805 deaths in 1993 (*1*). Multnomah County is Oregon's most populous county (1998 estimated population: 641,900); three fourths of county residents live in Portland. In 1999, in response to community concerns, the Multnomah County Health Department analyzed medical examiner (ME) data for 1993–1999 and interviewed heroin users to characterize heroin overdose deaths (HODDs) in the county. This report summarizes the findings of these studies, which indicate that HODDs in the county more than doubled from 1993 to 1999 (from 46 to 111), and that interviews with users helped identify possible public health interventions.

For 1993–1999, ME-diagnosed HODDs were identified using the ME annual summary of drug-related deaths. For 1996–1999, the Multnomah County Health Department conducted a detailed review of ME records of drug-related deaths, which included those resulting from overdose and other drug-related causes (e.g., injury and disease deaths in which drugs played a role). ME-diagnosed HODDs for 1996–1999 were within 6.5% of those identified in the detailed case review.

During 1993–1999, 573 ME-diagnosed HODDs were identified. During 1996–1999, 517 drug-related deaths occurred in Multnomah County; 85 attributed to causes other than unintentional overdose (e.g., homicide and suicide) were excluded. Of the remaining 432 deaths, 389 (90.0%) were classified as unintentional HODDs based on laboratory evidence of opiates in blood or other specimens and absence of historic, scene, or toxicologic evidence of poisoning with other drugs, including other opiates. Of the 389 HODDs, 337 (86.6%) were in Multnomah County residents. HODDs more than doubled from 1993 (n=46) to 1999 (n=111) (Figure 1). In 1999, the cause-specific death rate from HODDs among all county residents was 15.1 per 100,000 population.

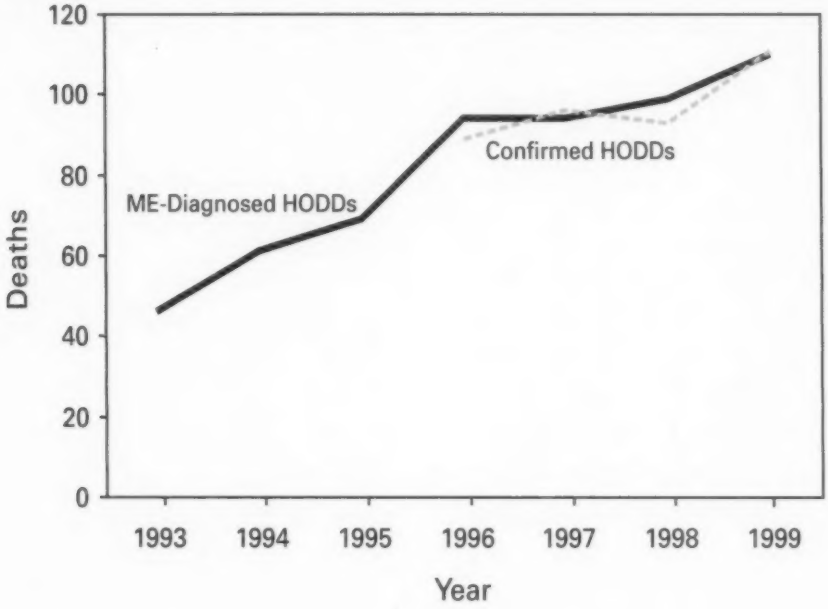
Of the 389 HODDs, 333 (85.6%) were in males. Almost half (46.8%) were in persons aged 45–54 years; 23.1%, aged 35–44 years; 22.9%, aged 25–34 years; and 4.9%, aged <25 years. The median ages for males (40.0 years) and females (37.5 years) were similar. The race/ethnicity of persons who died of heroin overdose reflected the county population.

Approximately half (47.6%) of HODDs occurred in users' homes, 13.4% occurred in friends' homes, and 13.4% in hotels/motels. Only 18.8% of the HODDs occurred in public settings where a passerby might have found the person who had overdosed.

Toxicology results were analyzed for 115 consecutive HODDs during October 1998–December 1999; for 58.3% of these HODDs, alcohol and/or drugs in addition to heroin

Heroin Overdose Deaths — Continued

FIGURE 1. Number of medical examiner (ME)-diagnosed heroin overdose deaths (HODDs)*, 1993–1999, and confirmed HODDs†, 1996–1999 — Multnomah County, Oregon



* Identified from ME annual summary of drug-related deaths.
† Identified from detailed review of ME data and includes unintentional HODDs with toxicologic evidence of opiates and absence of other drugs.

were detected. The substances most commonly identified along with heroin were cocaine (26.1%), benzodiazepines (15.7%), and alcohol (10.4%).

To gather data on circumstances of overdose and identify intervention opportunities, investigators interviewed heroin users with a history of overdose. Ten current users were recruited through posters in hotels and referrals from needle-exchange programs. Eight former users early in recovery (i.e., abstinent from heroin for <14 weeks) were recruited through a drug-free housing program. Respondents were asked about 1) drug availability, sources, cost, and potency; 2) drug use patterns; 3) personal experience with heroin overdose; and 4) response to companion's overdose.

Respondents reported that "black tar" heroin from Mexico or South America was the primary type used in the community and that heroin and other drugs are readily available and inexpensive. Users reported great variability in the potency of heroin sold in Multnomah County. Users also reported that injection was the primary route of administration.

Regular heroin users develop tolerance to higher doses. When heroin use is interrupted, heroin doses that were previously well-tolerated can cause overdose. Heroin users described several situations in which heroin use was interrupted: involuntarily,

Heroin Overdose Deaths — Continued

when incarcerated or lacking money to purchase heroin, and voluntarily, during attempts to stop using heroin. Regardless of the reason for the interruption, users reported they tended to resume injecting heroin at their usual dose and sometimes overdosed. Users believed that risk for overdose was greater when they used alcohol and other drugs with heroin, injected heroin without companions, and had another person inject drugs for them.

Heroin users' responses to a companion's overdose reflected a strong desire to avoid contact with law enforcement and medical systems. Three fourths of respondents reported that they hesitated to call for emergency assistance for fear of being arrested. Many attempted to resuscitate overdosed companions on their own. Users also described leaving overdose victims in public places, hoping that they would be discovered and helped by others.

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Editorial Note: The findings in this report indicate that HODDs are a major and increasing public health problem in Multnomah County. In 1999, it was a leading cause of death among men aged 25–54 years, with a cause-specific death rate of 47.8 per 100,000 population.

The ethnographic interviews provide some data about the circumstances and risk factors for heroin overdose in Multnomah County. Variations in heroin potency (*2,3*), intermittent and interrupted heroin use (*4*), use of other drugs and alcohol (*5*), and variable heroin tolerance (*6*) can increase the risk for overdose and death. Failure to use emergency medical services has been associated with fatal heroin overdose (*7*).

The findings in this report are subject to at least four limitations. First, surveillance for HODD is difficult because ME classification of overdose deaths is inconsistent (*8*). Second, this study probably underestimated the impact of heroin overdose on the county. Thirty-two HODDs were excluded from the analysis because they were not clearly unintentional overdoses, and 52 were excluded from death rate calculations because they did not occur in county residents. Third, the difficulty in reconstructing the social and behavioral context of overdose deaths complicates both surveillance of HODDs and identification of prevention opportunities. Finally, ethnographic data may not be representative of injecting-drug users in Multnomah County because those interviewed were from a convenience sample.

Several approaches may help to prevent HODDs. Improved public health surveillance should enable identification of risks and protective factors and help monitor the impact of interventions. Heroin use can be reduced by primary prevention of the initiation of drug use and substance abuse treatment (particularly methadone maintenance) for active users.

Other steps can be considered to reduce HODDs among users who cannot or will not stop injecting. Improving use and quality of emergency medical response and treatment can improve outcomes. Working with police to establish policies that persons reporting or suffering drug overdose are not subject to arrest could increase users' willingness to seek emergency assistance (*9*). Users can be counseled about the risks for heroin overdose and how to avoid them (*1,9,10*). Some programs train injecting-drug users and their partners in the use of naloxone, an opiate antagonist highly effective in reversing the effects of opiate overdose but that can induce withdrawal and requires medical supervision (*1,9*).

Heroin Overdose Deaths — Continued

Implementing interventions to decrease heroin and other fatal drug overdoses will require partnerships among a range of groups and programs, including public health, substance abuse treatment, syringe exchange/community outreach programs, emergency medical services, and police and criminal justice departments. Planning and implementation should involve heroin users because their knowledge, skills, and social networks can help identify interventions and achieve acceptance of interventions among the drug users at risk for drug overdose.

References

1. Sporer KA. Acute heroin overdose. Ann Intern Med 1999;130:584–90.
2. Darke S, Hall W, Weatherburn D, Lind B. Fluctuations in heroin purity and the incidence of fatal heroin overdose. Drug Alcohol Depend 1999;54:155–61.
3. Gossop M, Griffiths P, Powis B, et al. Frequency of non-fatal heroin overdose: survey of heroin users recruited in non-clinic settings. British Medical Journal 1996;313:402.
4. Seaman SR, Brettle RP, Gore SM. Mortality from overdose among injecting drug users recently released from prison: database linkage study. British Medical Journal 1998;316:426–8.
5. Darke S, Zador D. Fatal heroin "overdose": a review. Addiction 1996;91:1765–72.
6. White JM, Irvine RJ. Mechanisms of fatal opioid overdose. Addiction 1999;94:961–72.
7. Darke S, Ross J, Hall W. Overdose among heroin users in Sydney, Australia: II. Responses to overdose. Addiction 1996;91:413–7.
8. Poulin C, Stein J, Butt J. Surveillance of drug overdose deaths using medical examiner data. Chronic Dis Can 1998;19:177–82.
9. McGregor C, Hall K, Ali R, Christie P, Braithwaite R, Darke S. It's rarely just the "h": addressing overdose among South Australian heroin users through a process of intersectoral collaboration. Parkside, South Australia, Australia: Drug and Alcohol Services Council 1999:93–110 (monograph no. 2, research series).
10. World Health Organization. Opioid overdose: trends, risk factors, interventions, and priorities for action. Geneva, Switzerland: World Health Organization, 1998; WHO/HSC/SAB/98.4.

Unintentional Opiate Overdose Deaths — King County, Washington, 1990–1999

Heroin and other opiates are central nervous system depressants; in an opiate overdose, respiration slows, potentially resulting in hypoxia, coma, or death. In 1998, 140 deaths from unintentional opiate overdoses occurred in King County (which includes Seattle). To characterize these deaths, public health staff analyzed medical examiner data during 1990–1999. This report summarizes the results of that analysis, which indicate that the annual number of opiate overdoses increased 134% (from 47 to 110) and the county population increased 11.3% (1998 estimated population: 1.7 million) (*1*).

Fatal unintentional opiate overdoses were defined as deaths that the King County medical examiner (KCME) determined to be the result of heroin or opiate intoxication of unintentional or unknown intent. Known and probable suicides were excluded from this analysis*. For this report, opiate overdose refers to overdoses of unintentional or unknown intent. KCME used observations at the death scene, autopsy findings, and

*From 1990 through 1999, an average of two opiate overdose suicides occurred per year (range: zero to five).

Unintentional Opiate Overdose Deaths — Continued

toxicologic testing of body fluids to determine the cause of death[†]. The KCME database was searched for all deaths where heroin or opiate intoxication was listed on the death certificate as a primary, secondary, tertiary, or quaternary cause of death. Cases where opiates were detected, but overdose was not the primary cause of death, were excluded. Because a new software program was installed by KCME in 1995, detailed analyses were conducted on 1996–1999 data only; 1990–1995 data were used to calculate the annual number of deaths.

Because the number of drug users in King County is unknown, the estimated county population (based on Washington State Office of Financial Management estimates for intercensal years 1998 and 1999 and U.S. Bureau of the Census figures for 1990) was used to calculate opiate overdose death rates. Standard errors of mortality rates and the statistical significance of the change in rates from 1990 to 1999 were computed, and PC-SAS was used for chi-square analysis of categorical data (*2*).

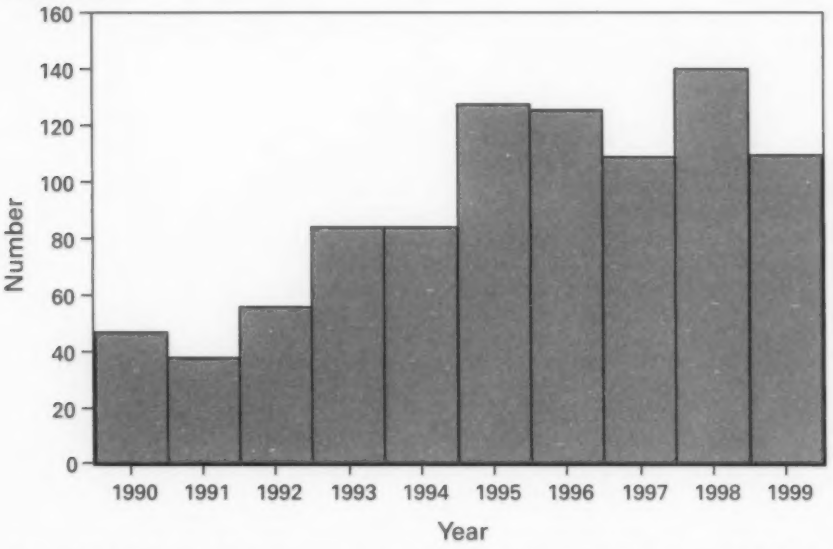
The King County opiate overdose death rate increased from 3.1 per 100,000 population in 1990 to 6.6 in 1999, an increase of 112.9% ($p<0.001$). Opiate overdose deaths peaked in 1998, when there were 140 deaths and a death rate of 8.4 (Figure 1). During 1996–1999, 484 decedents ranged in age from 16 to 77 years (median: 40 years). Most overdose deaths were in men (84.7%) and whites (83.0%). Three fourths of overdose deaths occurred in Seattle, and 94% of all decedents were residents of King County. Of 110 opiate overdose deaths in King County in 1999, 84 (76.4%) deaths involved substances in addition to opiates (42, other drugs; 21, alcohol; and 21, alcohol and other drugs). For 98 (89.0%) decedents, direct evidence of injecting-drug use (e.g., injection marks or used syringes) was found at the overdose site.

Since 1999, public health measures adopted by city and county government to address the increase in opiate overdose deaths in King County included authorizing a 50% increase in methadone treatment slots; improving access to methadone maintenance treatment with a motor-home–based clinic and through community-based agencies; providing preventive and limited substance-abuse treatment services in the local criminal justice system; increasing the availability of drug-free housing for persons in recovery; and providing education and interventions to children and adolescents to prevent initiation of drug use. The Seattle and King County governments have convened a task force on heroin use to develop new policies to improve access to substance-abuse treatment and extend prevention activities. A multidisciplinary, interagency working group composed of staff from Public Health–Seattle & King County, the Chemical Abuse and Dependency Services Division (King County Department of Community and Human Services), street outreach services, and providers of methadone treatment was established in January 2000 to plan an educational campaign targeting the user and substance-abuse treatment communities. In February, a Seattle hospital began dispensing methadone through a pharmacy for patients recovering from heroin addiction as part of a research project evaluating expanded access to methadone through primary-care physicians and pharmacies (*3*).

[†] Opiates detected included heroin, morphine, fentanyl, hydrocodone, codeine, and methadone. Heroin rapidly metabolizes into morphine in the body; until mid-1999, when KCME tests began to differentiate between different types of morphine, heroin-related deaths were listed as morphine-related unless direct evidence of heroin use was found at the overdose site.

Unintentional Opiate Overdose Deaths — Continued

FIGURE 1. Unintentional opiate overdose deaths, by year — King County, Washington, 1990–1999



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Editorial Note: The findings in this report indicate that the opiate overdose death rate increased substantially in King County during 1990–1999. Although national figures on opiate overdose deaths were not available, opiate overdose deaths appear to be a problem in other U.S. cities as well. During 1994–1998, the Drug Abuse Warning Network (DAWN)[1] received reports of 20,140 drug-induced deaths where opiates were detected. During 1994–1998, deaths reported to DAWN increased 25.7%.

Heroin use has been increasing among injecting-drug users (IDUs) in a Seattle study since 1994 (*4*; H. Hagan, Public Health–Seattle & King County, personal communication, 1999). The proportion of new study recruits reporting heroin as their primary injection drug has been increasing, from 61% (n=655) in 1994 to 86% (n=524) in 1999 (*5*; H. Hagan, Public Health–Seattle & King County, personal communication, 2000). The risk for death during intravenous injection of an opiate is greater than from intramuscular or subcutaneous injection or from snorting or smoking because intravenous injection results in a

[1] Managed by the Substance Abuse and Mental Health Services Administration, DAWN collects information on drug-abuse related deaths from participating medical examiners. The number of medical examiners participating in all years during 1994–1998 included 137 jurisdictions in 40 metropolitan areas.

Unintentional Opiate Overdose Deaths — Continued

more rapid rise in opiate levels in the blood (*6*). Most heroin used in King County is Mexican black tar, which is difficult to snort because of impurities and consistency. The purity of heroin available in King County has remained fairly stable since the early 1990s, ranging from 13.4% to 27.9% (Domestic Monitoring Program, Drug Enforcement Administration, unpublished data, 2000). In most opiate overdose deaths in King County, alcohol and other drugs were involved; these combinations can increase the likelihood of overdose (*7*).

The findings in this report are subject to at least four limitations. First, the number of opiate overdose deaths was determined from a single data source. If opiate overdose deaths were not reported to or investigated by KCME, they were not included in the analysis, resulting in a possible underestimate of the overdose death rate. Second, the case definition includes "accidental" and "undetermined" overdose deaths; some of the undetermined deaths may have been suicides, resulting in a potential overestimate of the death rate. Third, nonresidents of King County were included in the analyses if they died in King County, possibly resulting in an overestimate of the death rate. Finally, if a family member or acquaintance was not available to provide information about the decedent's race or ethnicity, visual identification was used to assign race and ethnicity, potentially resulting in misclassification.

Interventions to decrease unintentional opiate overdose deaths include preventing initiation of drug use and expanding substance-abuse treatment for addiction, particularly methadone maintenance. IDUs unable or unwilling to discontinue injecting should consider reducing heroin dose after illness or abstinence (e.g., because of incarceration); training in artificial respiration; and injecting in the presence of someone who can recognize an overdose, call emergency services, and administer artificial respiration if needed (*8,9*). Overdose prevention programs also must address IDUs' fear that calling for emergency assistance could result in arrest. Some programs train IDUs and their partners in the use of naloxone, an opiate antagonist highly effective in reversing the effects of opiate overdose but that can induce withdrawal symptoms and requires medical supervision (*6*). European programs that provide "safer injection room" facilities staffed by health-care workers have been associated with a decrease in drug overdose deaths (*10*).

References

1. Washington State Office of Financial Management. April 1 population of cities, towns and counties. April 1999. Available at http://www.ofm.wa.gov/countypop/countytoc.htm. Accessed January 2000.
2. National Center for Health Statistics. Health, United States, 1996–1997, and injury chartbook. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, CDC, 1997; DHHS publication no. (PHS)97-1232.
3. University of Washington. Harborview is first hospital to dispense methadone through pharmacy. February 2000. Available at http://www.washington.edu/medical/hmc/news/nr/hcr20000201.html. Accessed May 2000.
4. Hagan H, McGough JP, Thiede H, Weiss NS, Hopkins S, Alexander ER. Syringe exchange and risk of infection with hepatitis B and C viruses. Am J Epidemiol 1999;149:203–13.
5. Public Health–Seattle & King County. Recent drug abuse trends in the Seattle–King County area, May 2000. Available at http://www.metrokc.gov/health/subabuse/drugtrnd0500.htm. Accessed May 2000.
6. Sporer KA. Acute heroin overdose. Ann Intern Med 1999;130:584–90.
7. Darke S, Zador D. Fatal heroin 'overdose': a review. Addiction 1996;91:1765–72.

Unintentional Opiate Overdose Deaths — Continued

8. McGregor C, Hall K, Ali R, Christie P, Braithwaite R, Darke S. It's rarely just the "h": addressing overdose among South Australian heroin users through a process of intersectoral collaboration. Parkside, South Australia, Australia: Drug and Alcohol Services Council 1993:93–110 (monograph no. 2 research series).
9. Coffin DO. Heroin overdose: research and interventions. New York: The Lindesmith Center, January 2000. Available at http://www.lindesmith.org/. Accessed May 2000.
10. de Jong W, Weber U. The professional acceptance of drug use: a closer look at drug consumption rooms in the Netherlands, Germany and Switzerland. Int J Drug Policy 1999;10:99–108.

West Nile Virus Activity — New York and New Jersey, 2000

In late August 1999, an outbreak of encephalitis caused by West Nile virus (WNV) was detected in New York City and subsequently identified in neighboring counties (*1*). In response, an extensive mosquito-control and risk-reduction campaign was initiated, including aerial and ground applications of mosquito adulticides throughout the affected areas. No human WNV infections were found in New York City with an onset date after the campaign was completed. Cases continued to occur among humans in surrounding counties that did not undertake mosquito-control efforts until later, suggesting that the campaign may have reduced human risk. In May 2000, CDC issued guidelines to direct national surveillance, prevention, and control efforts (*2*) and provided funds to support these efforts in 19 state and local health departments where WNV transmission had occurred or where transmission would probably occur based on known bird migration patterns. This report presents the findings of surveillance activities.

From May 6 through July 8, 2000, state and local health departments confirmed WNV infections in 26 birds from five counties in New York and New Jersey. Twenty-one infections have been confirmed in American crows in New York and New Jersey, four in blue jays, and one in a red-tailed hawk. The first infected crow was found May 22 in Rockland County, and the most recently infected crows were found July 6 and 8 in the same county. Fourteen infected crows identified in New York were found in Rockland (eight crows), Suffolk (three), Westchester (one), and Richmond (Staten Island) (two) counties. Seven infected crows were found in Bergen County, New Jersey. Rockland County also identified four blue jays with WNV infection, and one infected hawk was found in Westchester County. WNV has been detected by polymerase chain reaction molecular methods in mosquito pools collected in Westchester County (*Aedes japonicus*) and in Suffolk County (mixed *Culex* species). No cases of human or equine infection have been reported in the region or in surrounding states.

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Editorial Note: WNV is transmitted readily by mosquitoes. *Culex* species were the primary vectors of WNV during previous outbreaks and epizootics; however, WNV also

West Nile Virus Activity — Continued

has been isolated from many species of *Aedes* and *Anopheles* (*3*). In New York, WNV was isolated primarily from *Culex* species mosquitoes during the 1999 outbreak; WNV also was detected in overwintering *Culex* species in New York City. These findings suggest an important role for these species in the transmission of WNV in the United States. *Aedes japonicus* was detected recently in the United States, and research is needed to determine the flight range and feeding behavior of mosquitoes and to better understand the risk for transmission to humans.

The susceptibility of crows to infection and death is a sensitive surveillance tool that is unique to the United States (*4*). No data exist from which to infer the mosquito WNV infection rate associated with a small number of dead crows in an area, or to infer the risk to humans. Data also are lacking to infer where and how the dead crows acquired infection. Time of year and reproductive status of the crow population may be used to indicate whether transmission occurred locally. On the basis of the known nesting habits of crows, the finding of infected crows in early summer suggest local transmission in Rockland, Westchester, Suffolk, and Bergen counties. Data from the U.S. Geologic Survey's National Wildlife Health Center indicate that crows infected with WNV are likely to have high viremias and also are likely to be sedentary approximately 4 days before death, suggesting that they can be a source of WNV for mosquitoes in areas where they are found (National Wildlife Health Center, unpublished data, 2000).

On the basis of the surveillance indicators described in this report and the phased response plan (*2*), CDC recommends the following for those areas where evidence suggests local transmission of WNV:

1. Intensify local and regional *Culex* mosquito larval control to prevent the emergence of adult mosquitoes that feed on birds and may contribute to the virus amplification/transmission cycle.
2. Expand and intensify surveillance activities in and around areas where WNV-infected birds are found. Additional surveillance data about the species population densities, virus infection rates in mosquito vectors, seroprevalence in resident wild birds (e.g., house sparrows), and seroconversion rates in sentinel chickens will permit a more accurate interpretation of dead bird surveillance data and the relative risk for human disease.
3. Continue active WNV surveillance to determine the presence of new or expanding WNV transmission foci.
4. Reinforce public education and outreach programs to reduce mosquito breeding sites around the home and use personal protective measures.
5. Implement, if necessary, focal adult mosquito control to reduce the number of virus-infected mosquitoes, thus reducing the immediate risk to humans. Mosquito species that feed on birds probably are driving enzootic transmission in 2000 and probably are the vector for human cases (*5*). Adult mosquitoes should be controlled within approximately a 2-mile radius around the area where a WNV positive dead bird or infected mosquitoes are found. This radius depends on the length of time between transmission of the virus and the execution of control; as the time period increases, larger areas must be treated.
6. Consider aerial spraying of adulticides in areas where WNV transmission is sustained and further amplification is evident despite intensive local mosquito control efforts.
7. Monitor adult and larval mosquito control efforts to ensure that the control programs are effectively reducing vector mosquito densities and virus infection rates.

West Nile Virus Activity — Continued

Counties where WNV transmission occurred in 1999, but has not been identified in 2000, should maintain active surveillance for WNV and continue larval mosquito-control, such as controlling larval mosquito habitats, particularly around homes in suburban and urban areas and monitoring *Culex* larval habitats regularly for mosquito breeding.

References

1. CDC. Update: West Nile virus encephalitis—New York, 1999. MMWR 1999;48:944–6,955.
2. CDC. Epidemic/epizootic West Nile virus in the United States: guidelines for surveillance, prevention, and control: a workshop cosponsored by US Department of Health and Human Services, CDC, and US Department of Agriculture, Fort Collins, Colorado, November 8–9, 1999. Available at www.cdc.gov/ncidod/dvbid/westnile/resources/WN_surv_guide_Mar_2000.pdf.
3. Hayes CG. West Nile fever. In: Monath TR, ed. The arboviruses: epidemiology and ecology. Boca Raton, Florida: CRC Press, Inc., 1989.
4. Komar N. West Nile viral encephalitis. Rev Sci Tech OIE 2000;19:166–76.
5. CDC. Update: West Nile-like viral encephalitis—New York, 1999. MMWR 1999;48:890–2.

Notice to Readers

Update: Expanded Availability of Thimerosal Preservative-Free Hepatitis B Vaccine

Thimerosal, a mercury-based compound, is no longer used as a preservative in any of the pediatric hepatitis B vaccines licensed in the United States. On March 28, 2000, SmithKline Beecham Biologicals (Rixensart, Belgium)* received approval from the Food and Drug Administration of a supplement to its hepatitis B license to include the manufacture of single-antigen, preservative-free hepatitis B vaccine (Engerix-B, pediatric/adolescent); distribution of this product has begun. A single-antigen, preservative-free hepatitis B vaccine (Recombivax HB, pediatric) from Merck Vaccine Division (West Point, Pennsylvania) had earlier received similar approval (*1*). A preservative-free *Haemophilus influenzae* type b (Hib)/hepatitis B combination vaccine (Comvax) from Merck Vaccine Division also is available. An adequate supply of preservative-free hepatitis B vaccine is available for all infant and childhood vaccinations. Thimerosal preservative-containing hepatitis B vaccines may continue to be used for vaccination of adolescents and adults as recommended (*2*).

Some vaccines that do not use thimerosal as a preservative may have trace amounts of thimerosal introduced during the manufacturing process. The amount of thimerosal in the new pediatric/adolescent formulation of Engerix-B (<1 µg of thimerosal/0.5 mL dose of vaccine) has been reduced by more than 96% (*3*).

Universal vaccination of infants is the central focus of hepatitis B prevention efforts, and initiation of the hepatitis B vaccine series at birth is safe and effective (*4*). Many hospitals that had provided routine hepatitis B vaccination to all infants at birth before the July 1999 joint American Academy of Physicians/Public Health Service statement on

*References to sites of non-CDC organizations on the World-Wide Web are provided as a service to MMWR readers and do not constitute or imply endorsement of these organizations or their programs by CDC or the U.S. Department of Health and Human Services. CDC is not responsible for the content of pages found at these sites.

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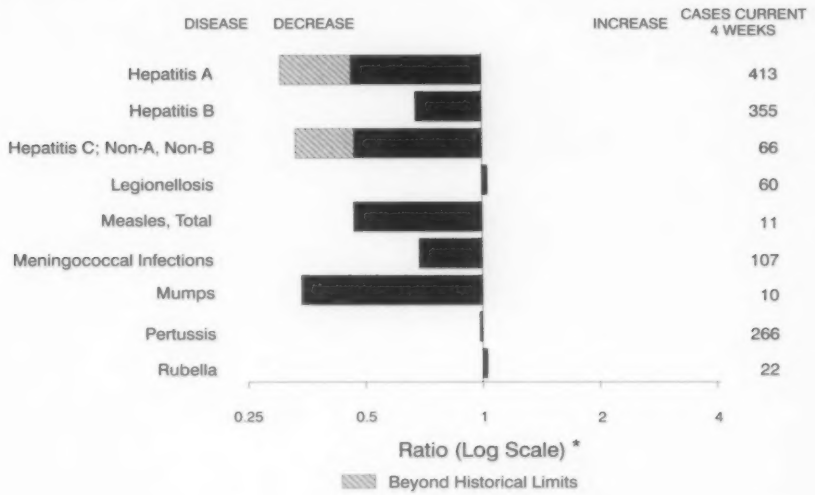
FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals ending July 15, 2000, with historical data



*Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary of provisional cases of selected notifiable diseases, United States, cumulative, week ending July 15, 2000 (28th Week)

	Cum. 2000		Cum. 2000
Anthrax	-	HIV infection, pediatric*†	108
Brucellosis*	26	Plague	4
Cholera	-	Poliomyelitis, paralytic	-
Congenital rubella syndrome	4	Psittacosis*	8
Cyclosporiasis*	19	Rabies, human	-
Diphtheria	-	Rocky Mountain spotted fever (RMSF)	138
Encephalitis: California serogroup viral*	7	Streptococcal disease, invasive, group A	1,738
eastern equine*	-	Streptococcal toxic-shock syndrome*	56
St. Louis*	-	Syphilis, congenital§	74
western equine*	-	Tetanus	14
Ehrlichiosis human granulocytic (HGE)*	56	Toxic-shock syndrome	91
human monocytic (HME)*	25	Trichinosis	4
Hansen disease (leprosy)*	30	Typhoid fever	168
Hantavirus pulmonary syndrome*†	13	Yellow fever	-
Hemolytic uremic syndrome, postdiarrheal*	48		

-: No reported cases.
*Not notifiable in all states.
†Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
‡Updated monthly from reports to the Division of HIV/AIDS Prevention — Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP). Last update June 25, 2000.
§Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending July 15, 2000, and July 17, 1999 (28th Week)

Reporting Area	AIDS		Chlamydia†		Cryptosporidiosis		*Escherichia coli* O157:H7*			
							NETSS		PHLIS	
	Cum. 2000§	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999
UNITED STATES	20,482	22,981	313,693	348,907	667	967	1,329	974	769	978
NEW ENGLAND	1,213	1,109	11,214	11,285	35	51	140	142	115	140
Maine	16	29	720	570	9	11	9	12	7	-
N.H.	18	30	515	527	5	6	11	17	12	17
Vt.	11	6	284	255	13	7	10	15	4	8
Mass.	776	702	5,293	4,787	6	24	62	66	52	67
R.I.	49	63	1,211	1,259	2	-	8	9	8	11
Conn.	343	279	3,191	3,887	-	3	40	23	32	37
MID. ATLANTIC	4,928	5,893	23,205	36,292	69	203	136	70	67	71
Upstate N.Y.	572	727	N	N	40	61	111	44	43	6
N.Y. City	2,620	2,995	8,080	15,382	7	117	7	5	-	-
N.J.	1,036	1,146	3,820	6,522	7	16	18	21	16	64
Pa.	700	1,025	11,305	14,388	15	9	N	N	8	1
E.N. CENTRAL	2,052	1,498	51,398	57,408	148	178	255	182	101	169
Ohio	306	246	13,106	14,727	23	20	53	62	25	59
Ind.	191	189	6,310	6,422	12	13	41	22	25	21
Ill.	1,198	677	13,678	17,197	7	32	62	66	-	44
Mich.	255	307	12,459	11,502	32	25	47	32	26	20
Wis.	102	79	5,845	7,560	74	88	52	N	25	25
W.N. CENTRAL	480	502	17,465	20,197	64	56	201	175	145	215
Minn.	87	82	3,282	4,071	11	13	52	46	51	72
Iowa	52	52	2,101	2,306	21	13	43	31	10	26
Mo.	223	231	6,331	7,365	11	11	58	18	44	25
N. Dak.	1	4	352	472	5	4	8	3	12	6
S. Dak.	4	11	940	821	5	3	10	12	12	21
Nebr.	31	37	1,811	1,844	9	11	19	52	9	62
Kans.	82	85	2,648	3,318	2	1	11	13	7	3
S. ATLANTIC	5,443	6,282	63,956	75,013	126	173	109	116	60	90
Del.	94	80	1,537	1,474	4	-	-	4	-	-
Md.	602	720	6,844	7,099	7	9	12	8	1	-
D.C.	388	239	1,731	N	7	7	-	-	U	U
Va.	385	335	7,782	7,942	4	10	22	31	19	30
W. Va.	33	31	753	943	3	-	8	5	4	2
N.C.	334	394	11,727	12,250	12	5	20	24	15	28
S.C.	434	579	4,880	9,523	-	-	6	12	2	10
Ga.	607	957	12,081	19,064	61	87	15	7	10	U
Fla.	2,566	2,947	16,621	16,718	28	55	26	25	9	20
E.S. CENTRAL	1,005	1,028	24,740	23,617	25	13	53	63	27	46
Ky.	114	151	4,306	4,096	1	4	19	14	13	11
Tenn.	407	402	7,535	7,324	7	4	22	28	12	18
Ala.	262	255	7,606	5,669	10	3	5	15	-	14
Miss.	222	220	5,293	6,528	7	2	7	6	2	3
W.S. CENTRAL	1,868	2,475	50,970	47,530	29	40	75	44	64	61
Ark.	103	90	2,876	3,219	1	-	36	5	3	5
La.	336	464	10,034	7,279	8	21	4	6	18	7
Okla.	156	71	4,177	4,297	4	2	9	7	7	10
Tex.	1,273	1,850	33,883	32,735	16	17	26	26	36	39
MOUNTAIN	755	852	19,778	18,646	44	43	150	78	78	66
Mont.	9	4	803	697	8	8	16	4	-	-
Idaho	13	12	1,002	922	3	3	19	4	-	7
Wyo.	6	3	377	413	3	-	8	3	2	5
Colo.	157	171	6,104	4,268	13	4	65	29	36	17
N. Mex.	86	46	2,468	2,786	3	17	6	5	3	2
Ariz.	244	422	6,044	6,786	3	8	27	14	20	9
Utah	67	80	1,240	1,118	9	N	7	15	17	19
Nev.	173	114	1,740	1,656	2	3	2	4	-	7
PACIFIC	2,738	3,342	50,967	58,919	127	210	210	104	112	120
Wash.	285	185	6,858	6,293	N	N	77	33	69	48
Oreg.	89	87	2,783	3,404	9	79	34	24	35	22
Calif.	2,275	3,011	38,866	46,509	118	131	89	42	-	46
Alaska	10	13	1,265	999	-	-	2	-	1	-
Hawaii	79	46	1,195	1,714	-	-	8	5	7	5
Guam	13	5	-	242	-	-	N	N	U	U
P.R.	518	737	478	U	-	-	4	5	U	U
V.I.	21	15	-	U	-	U	-	U	U	U
Amer. Samoa	-	-	-	U	-	U	-	U	U	U
C.N.M.I.	-	-	-	U	-	U	-	U	U	U

N: Not notifiable. U: Unavailable. -: No reported cases. C.N.M.I.: Commonwealth of Northern Mariana Islands.

* Individual cases can be reported through both the National Electronic Telecommunications System for Surveillance (NETSS) and the Public Health Laboratory Information System (PHLIS).

† Chlamydia refers to genital infections caused by *C. trachomatis*. Totals reported to the Division of STD Prevention, NCHSTP.

§ Updated monthly from reports to the Division of HIV/AIDS Prevention — Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention. Last update June 25, 2000.

TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending July 15, 2000, and July 17, 1999 (28th Week)

Reporting Area	Gonorrhea		Hepatitis C; Non-A, Non-B		Legionellosis		Lyme Disease	
	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999
UNITED STATES	162,447	185,078	1,359	2,013	386	475	3,475	5,344
NEW ENGLAND	3,077	3,421	27	12	23	30	898	1,590
Maine	41	27	1	2	2	3	-	1
N.H.	54	55	-	-	2	3	35	1
Vt.	31	32	3	5	2	5	5	4
Mass.	1,410	1,339	20	2	9	10	347	422
R.I.	304	323	3	3	3	3	80	113
Conn.	1,237	1,645	-	-	5	6	431	1,049
MID. ATLANTIC	14,520	21,016	55	69	75	112	1,939	2,708
Upstate N.Y.	3,507	3,228	37	34	32	28	954	1,259
N.Y. City	3,220	7,294	-	-	-	14	4	78
N.J.	2,489	3,908	-	-	4	11	319	654
Pa.	5,304	6,586	18	35	39	59	662	717
E.N. CENTRAL	31,437	35,887	131	1,112	98	148	86	365
Ohio	7,722	9,348	4	1	39	45	29	26
Ind.	2,914	3,444	1	1	25	20	11	14
Ill.	9,365	11,697	8	33	8	19	2	13
Mich.	9,168	8,059	118	484	19	36	-	9
Wis.	2,268	3,339	-	593	7	28	44	303
W.N. CENTRAL	7,595	8,577	379	98	29	26	82	71
Minn.	1,334	1,493	5	3	1	1	26	13
Iowa	465	545	1	-	4	8	4	10
Mo.	3,811	4,181	348	93	19	12	19	32
N. Dak.	15	45	-	-	-	-	-	1
S. Dak.	143	80	-	-	1	1	-	-
Nebr.	673	851	3	2	-	4	-	8
Kans.	1,154	1,382	22	-	4	-	33	7
S. ATLANTIC	46,200	54,226	66	95	83	59	386	481
Del.	874	890	-	-	4	7	53	39
Md.	4,510	5,154	9	15	29	10	241	348
D.C.	1,235	1,953	2	-	1	1	1	3
Va.	4,955	5,343	1	10	11	13	52	32
W. Va.	227	325	9	13	N	N	10	11
N.C.	9,531	10,558	13	25	8	10	13	38
S.C.	5,783	5,657	1	13	2	7	2	3
Ga.	7,559	12,474	2	1	4	-	-	-
Fla.	11,526	11,872	29	18	24	11	14	7
E.S. CENTRAL	17,794	18,411	230	166	11	29	17	39
Ky.	1,816	1,805	18	10	5	12	4	6
Tenn.	5,844	5,824	57	58	4	13	10	19
Ala.	5,996	4,993	7	1	2	2	2	11
Miss.	4,138	5,789	148	97	-	2	1	3
W.S. CENTRAL	26,468	26,641	277	270	11	2	9	16
Ark.	1,552	1,618	3	15	-	-	1	1
La.	7,035	5,987	172	187	8	1	1	3
Okla.	1,814	2,148	4	7	1	1	-	4
Tex.	16,067	16,888	98	61	2	-	7	8
MOUNTAIN	5,096	5,067	108	102	20	29	4	7
Mont.	26	22	2	4	-	-	-	-
Idaho	49	46	3	4	4	-	1	-
Wyo.	30	13	64	34	1	-	1	1
Colo.	1,647	1,266	14	16	7	8	1	1
N. Mex.	527	534	10	17	1	1	-	1
Ariz.	2,028	2,412	11	19	3	4	-	-
Utah	125	106	-	5	4	10	-	2
Nev.	664	668	4	3	-	6	1	2
PACIFIC	10,260	11,832	86	89	36	40	54	67
Wash.	1,194	1,095	15	9	12	9	3	2
Oreg.	370	486	18	11	N	N	3	6
Calif.	8,351	9,853	51	69	24	30	48	59
Alaska	172	164	-	-	-	1	-	-
Hawaii	173	234	2	-	-	-	N	N
Guam	-	33	-	-	-	-	-	-
P.R.	307	172	1	-	-	-	N	N
V.I.	-	U	-	U	-	U	-	U
Amer. Samoa	-	U	-	U	-	U	-	U
C.N.M.I.	-	U	-	U	-	U	-	U

N: Not notifiable. U: Unavailable. - : No reported cases.

TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending July 15, 2000, and July 17, 1999 (28th Week)

Reporting Area	Malaria		Rabies, Animal		Salmonellosis*			
					NETSS		PHLIS	
	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999
UNITED STATES	526	665	2,807	3,149	15,089	16,925	10,484	15,585
NEW ENGLAND	28	26	369	430	999	992	952	1,051
Maine	4	2	79	79	77	67	41	52
N.H.	1	2	8	26	69	55	66	64
Vt.	2	1	36	61	61	41	59	37
Mass.	7	11	120	94	569	571	520	570
R.I.	5	2	22	52	45	56	79	76
Conn.	9	8	104	118	178	202	187	252
MID. ATLANTIC	87	180	523	591	1,996	2,288	1,788	2,168
Upstate N.Y.	31	36	364	419	558	528	542	556
N.Y. City	29	89	U	U	451	675	560	680
N.J.	9	35	83	103	495	511	307	503
Pa.	18	20	76	69	492	574	379	429
E.N. CENTRAL	57	84	43	52	2,230	2,588	1,264	2,236
Ohio	12	12	11	14	578	504	423	482
Ind.	4	8	-	-	281	218	244	217
Ill.	19	36	4	2	642	842	1	788
Mich.	17	20	23	25	445	484	429	488
Wis.	5	9	5	11	284	540	167	261
W.N. CENTRAL	29	28	276	426	1,020	1,064	1,067	1,202
Minn.	13	5	50	61	201	260	290	363
Iowa	1	8	45	66	170	107	94	107
Mo.	5	11	12	14	363	375	418	434
N. Dak.	2	-	74	88	27	15	41	32
S. Dak.	-	-	48	124	36	50	48	72
Nebr.	2	-	-	3	69	110	44	87
Kans.	6	4	47	70	154	147	132	107
S. ATLANTIC	149	165	1,212	1,107	3,080	3,303	2,025	2,815
Del.	3	1	20	30	48	63	51	75
Md.	47	50	233	226	412	376	372	401
D.C.	12	11	-	-	31	50	U	U
Va.	30	38	303	282	419	563	364	520
W. Va.	2	1	66	67	79	75	71	68
N.C.	11	11	293	224	404	493	332	574
S.C.	1	2	73	85	292	200	218	179
Ga.	4	13	157	101	528	506	571	722
Fla.	39	38	67	92	867	977	46	276
E.S. CENTRAL	21	13	96	154	781	914	439	642
Ky.	5	3	14	24	177	192	118	138
Tenn.	5	5	50	56	205	233	194	252
Ala.	10	4	32	74	234	258	111	217
Miss.	1	1	-	-	165	231	16	35
W.S. CENTRAL	7	13	35	80	1,175	1,525	1,362	1,235
Ark.	1	2	-	14	253	203	105	76
La.	2	9	-	-	108	325	177	273
Okla.	4	2	35	66	169	177	104	135
Tex.	-	-	-	-	645	820	976	751
MOUNTAIN	24	22	118	112	1,357	1,516	948	1,357
Mont.	1	4	34	40	58	28	-	1
Idaho	2	1	1	-	75	48	-	47
Wyo.	-	1	26	31	28	20	14	24
Colo.	11	9	-	1	414	424	383	424
N. Mex.	-	2	11	4	116	223	83	176
Ariz.	3	2	43	32	365	435	287	383
Utah	3	2	2	3	172	240	181	253
Nev.	4	1	1	1	129	98	-	49
PACIFIC	124	134	135	197	2,451	2,735	639	2,879
Wash.	12	10	-	-	229	311	312	462
Oreg.	22	13	2	1	169	257	212	288
Calif.	87	101	114	189	1,923	1,923	-	1,941
Alaska	-	-	19	7	29	24	21	13
Hawaii	3	10	-	-	101	220	94	175
Guam	-	-	-	-	-	20	U	U
P.R.	-	-	37	50	124	262	U	U
V.I.	-	U	-	U	-	U	U	U
Amer. Samoa	-	U	-	U	-	U	U	U
C.N.M.I.	-	U	-	U	-	U	U	U

N: Not notifiable. U: Unavailable. -: No reported cases.

* Individual cases can be reported through both the National Electronic Telecommunications System for Surveillance (NETSS) and the Public Health Laboratory Information System (PHLIS).

TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending July 15, 2000, and July 17, 1999 (28th Week)

Reporting Area	Shigellosis* NETSS Cum. 2000	Shigellosis* NETSS Cum. 1999	Shigellosis* PHLIS Cum. 2000	Shigellosis* PHLIS Cum. 1999	Syphilis (Primary & Secondary) Cum. 2000	Syphilis (Primary & Secondary) Cum. 1999	Tuberculosis Cum. 2000	Tuberculosis Cum. 1999†
UNITED STATES	8,944	7,325	4,404	4,139	3,080	3,522	5,674	8,076
NEW ENGLAND	178	185	159	161	43	32	197	218
Maine	6	3	-	-	1	-	2	12
N.H.	4	7	6	6	1	1	4	4
Vt.	2	4	-	3	-	2	2	-
Mass.	126	126	106	110	33	20	120	119
R.I.	12	14	18	8	3	1	22	24
Conn.	28	31	29	34	5	8	47	59
MID. ATLANTIC	1,104	505	674	293	134	157	1,228	1,251
Upstate N.Y.	437	128	149	32	7	13	135	141
N.Y. City	420	169	366	121	53	69	676	676
N.J.	158	128	83	104	24	34	289	274
Pa.	89	80	76	36	50	41	128	160
E.N. CENTRAL	2,009	1,402	582	677	593	634	612	857
Ohio	150	271	95	66	41	52	132	108
Ind.	839	83	73	33	224	215	44	65
Ill.	464	513	2	407	171	230	306	402
Mich.	427	177	376	128	136	113	82	172
Wis.	129	358	36	43	21	24	48	110
W.N. CENTRAL	938	601	702	425	37	82	239	268
Minn.	189	92	256	133	3	7	82	103
Iowa	260	11	131	13	10	7	23	26
Mo.	370	424	263	226	19	54	94	96
N. Dak.	4	2	4	2	-	-	2	2
S. Dak.	2	9	1	5	-	-	9	9
Nebr.	30	37	9	25	2	4	10	12
Kans.	83	26	38	21	3	10	19	20
S. ATLANTIC	1,264	1,181	381	304	1,029	1,164	1,269	1,641
Del.	8	8	8	3	5	4	-	20
Md.	73	69	23	23	147	232	140	138
D.C.	20	32	U	U	31	27	11	28
Va.	212	47	174	28	69	93	136	121
W. Va.	3	6	3	3	1	2	18	25
N.C.	65	120	31	59	305	260	162	219
S.C.	65	65	52	35	97	147	54	174
Ga.	126	117	41	42	186	222	240	331
Fla.	692	717	49	111	188	177	508	585
E.S. CENTRAL	437	715	262	464	474	614	409	516
Ky.	108	134	48	100	51	52	58	101
Tenn.	218	458	200	323	294	340	186	160
Ala.	23	65	11	37	63	134	165	157
Miss.	88	58	3	4	66	88	-	98
W.S. CENTRAL	1,015	1,297	1,059	520	447	531	240	1,114
Ark.	112	52	24	20	56	39	102	85
La.	71	109	72	53	105	129	73	U
Okla.	66	337	20	103	74	118	65	67
Tex.	766	799	943	344	212	245	-	962
MOUNTAIN	503	381	215	248	108	117	250	243
Mont.	4	6	-	-	-	-	6	5
Idaho	32	8	-	6	1	1	5	-
Wyo.	1	2	2	1	1	-	1	1
Colo.	85	61	42	47	2	1	30	U
N. Mex.	54	49	22	32	15	6	29	35
Ariz.	217	198	110	127	86	103	119	121
Utah	35	28	39	29	-	2	22	25
Nev.	75	29	-	6	3	4	38	56
PACIFIC	1,496	1,058	370	1,047	215	191	1,230	1,968
Wash.	318	55	289	54	35	39	150	137
Oreg.	95	39	59	33	4	3	8	57
Calif.	1,050	940	-	937	175	147	950	1,652
Alaska	7	-	3	-	-	1	51	33
Hawaii	26	24	19	23	1	1	71	89
Guam	-	7	U	U	-	1	-	3
P.R.	2	57	U	U	74	88	-	103
V.I.	-	U	U	U	-	U	-	U
Amer. Samoa	-	U	U	U	-	U	-	U
C.N.M.I.	-	U	U	U	-	U	-	U

N: Not notifiable. U: Unavailable. -: No reported cases.

*Individual cases can be reported through both the National Electronic Telecommunications System for Surveillance (NETSS) and the Public Health Laboratory Information System (PHLIS).

†Cumulative reports of provisional tuberculosis cases for 1999 are unavailable ("U") for some areas using the Tuberculosis Information System (TIMS).

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending July 15, 2000, and July 17, 1999 (28th Week)

Reporting Area	*H. influenzae*, Invasive		Hepatitis (Viral), By Type				Measles (Rubeola)					
			A		B		Indigenous		Imported*		Total	
	Cum. 2000[†]	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	2000	Cum. 2000	2000	Cum. 2000	Cum. 2000	Cum. 1999
UNITED STATES	667	660	5,955	8,840	3,591	3,630	2	32	-	11	43	61
NEW ENGLAND	49	48	148	129	36	83	-	-	-	3	3	10
Maine	1	5	10	4	5	1	-	-	-	-	-	-
N.H.	9	9	16	8	11	8	-	-	-	-	-	1
Vt.	3	4	4	1	5	1	-	-	-	3	3	-
Mass.	23	19	59	52	6	28	-	-	-	-	-	7
R.I.	1	1	7	10	9	22	-	-	-	-	-	-
Conn.	12	10	52	54	-	23	-	-	-	-	-	2
MID. ATLANTIC	105	120	547	635	487	485	2	8	-	1	9	5
Upstate N.Y.	51	48	120	136	67	109	2	8	-	-	8	2
N.Y. City	24	37	176	175	206	148	-	-	-	-	-	3
N.J.	23	32	79	80	79	73	-	-	-	-	-	-
Pa.	7	3	172	244	135	155	-	-	-	1	1	-
E.N. CENTRAL	88	105	723	1,691	386	399	-	7	-	-	7	2
Ohio	36	37	148	392	66	52	-	2	-	-	2	-
Ind.	12	16	36	60	28	27	-	-	-	-	-	1
Ill.	35	44	258	365	61	35	-	4	-	-	4	-
Mich.	5	8	268	828	230	261	-	1	-	-	1	1
Wis.	-	-	13	46	1	24	-	-	-	-	-	-
W.N. CENTRAL	36	26	595	413	508	153	-	2	-	1	3	-
Minn.	16	13	129	42	19	25	-	-	-	1	1	-
Iowa	-	1	51	76	22	23	-	1	-	-	1	-
Mo.	8	3	288	242	422	88	-	-	-	-	-	-
N. Dak.	1	-	2	1	2	-	U	-	U	-	-	-
S. Dak.	-	2	-	8	-	1	-	-	-	-	-	-
Nebr.	4	3	18	34	18	12	-	-	-	-	-	-
Kans.	7	4	107	10	25	4	U	1	U	-	1	-
S. ATLANTIC	183	143	717	941	652	536	-	1	-	-	1	4
Del.	-	-	-	2	-	1	-	-	-	-	-	-
Md.	50	38	89	179	72	85	-	-	-	-	-	-
D.C.	-	4	14	37	17	14	-	-	-	-	-	-
Va.	28	12	82	88	80	53	-	-	-	-	-	3
W. Va.	5	4	44	20	6	15	-	-	-	-	-	-
N.C.	15	23	92	66	141	125	-	-	-	-	-	-
S.C.	10	2	30	22	5	38	-	-	-	-	-	-
Ga.	50	41	112	268	98	63	-	-	-	-	-	-
Fla.	25	19	254	259	233	142	-	1	-	-	1	1
E.S. CENTRAL	30	43	243	239	245	257	-	-	-	-	-	2
Ky.	11	6	29	45	50	19	-	-	-	-	-	2
Tenn.	14	21	93	101	110	123	-	-	-	-	-	-
Ala.	4	14	35	36	27	54	-	-	-	-	-	-
Miss.	1	2	86	57	58	61	-	-	-	-	-	-
W.S. CENTRAL	37	44	964	1,741	367	604	-	1	-	-	1	4
Ark.	-	2	93	26	58	44	-	1	-	-	1	-
La.	7	11	28	105	50	116	-	-	-	-	-	-
Okla.	28	28	160	318	75	74	-	-	-	-	-	-
Tex.	2	3	683	1,292	184	370	-	-	-	-	-	4
MOUNTAIN	69	60	485	764	259	337	-	11	-	1	12	1
Mont.	-	1	2	12	3	16	-	-	-	-	-	-
Idaho	3	1	18	29	5	20	-	-	-	-	-	-
Wyo.	1	1	8	4	2	8	-	-	-	-	-	-
Colo.	11	10	108	143	51	48	-	1	-	1	2	-
N. Mex.	14	14	43	30	69	106	-	-	-	-	-	-
Ariz.	33	28	239	443	93	86	-	-	-	-	-	1
Utah	6	3	34	29	14	20	U	3	U	-	3	-
Nev.	1	2	33	74	22	33	U	7	U	-	7	-
PACIFIC	70	71	1,533	2,287	651	776	-	2	-	5	7	33
Wash.	3	2	151	169	42	35	-	-	-	-	-	5
Oreg.	18	25	116	148	51	62	-	-	-	-	-	11
Calif.	26	36	1,258	1,953	547	658	-	1	-	3	4	16
Alaska	4	5	8	4	6	13	-	1	-	-	1	-
Hawaii	19	3	-	13	5	8	-	-	-	2	2	1
Guam	-	-	-	2	-	2	U	-	U	-	-	1
P.R.	1	2	57	176	58	127	-	-	-	-	-	-
V.I.	-	U	-	U	-	U	U	-	U	-	-	U
Amer. Samoa	-	U	-	U	-	U	U	-	U	-	-	U
C.N.M.I.	-	U	-	U	-	U	U	-	U	-	-	U

N: Not notifiable. U: Unavailable. - : No reported cases.
*For imported measles, cases include only those resulting from importation from other countries.
[†]Of 132 cases among children aged <5 years, serotype was reported for 60 and of those, 16 were type b.

TABLE III. (Cont'd) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending July 15, 2000, and July 17, 1999 (28th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 2000	Cum. 1999	2000	Cum. 2000	Cum. 1999	2000	Cum. 2000	Cum. 1999	2000	Cum. 2000	Cum. 1999
UNITED STATES	1,269	1,468	2	206	225	96	2,700	3,120	-	79	167
NEW ENGLAND	80	71	-	2	6	7	682	364	-	6	7
Maine	6	5	-	-	-	-	14	-	-	-	-
N.H.	9	9	-	-	1	-	62	54	-	2	-
Vt.	2	4	-	-	1	3	148	28	-	-	-
Mass.	48	41	-	-	4	1	417	249	-	3	7
R.I.	6	2	-	1	-	2	11	13	-	-	-
Conn.	9	10	-	1	-	1	30	10	-	1	-
MID. ATLANTIC	123	147	-	9	32	9	198	611	-	2	25
Upstate N.Y.	38	40	-	6	6	6	121	503	-	2	17
N.Y. City	26	42	-	-	8	-	-	24	-	-	2
N.J.	27	33	-	-	1	-	-	15	-	-	3
Pa.	32	32	-	3	17	3	77	69	-	-	3
E.N. CENTRAL	224	259	-	24	28	27	327	268	-	1	2
Ohio	53	97	-	7	8	13	180	120	-	-	-
Ind.	34	32	-	-	3	9	36	14	-	-	1
Ill.	53	66	-	5	7	4	27	58	-	1	1
Mich.	64	37	-	12	8	1	35	26	-	-	-
Wis.	20	27	-	-	2	-	49	50	-	-	-
W.N. CENTRAL	107	141	1	13	9	4	141	115	-	1	88
Minn.	7	29	-	-	1	-	66	35	-	-	-
Iowa	21	26	-	5	4	-	26	25	-	-	26
Mo.	62	53	1	2	1	3	26	28	-	-	2
N. Dak.	2	3	U	-	-	U	1	-	U	-	-
S. Dak.	5	8	-	-	-	-	3	5	-	-	-
Nebr.	5	8	-	2	-	1	4	3	-	-	60
Kans.	5	14	U	4	3	U	15	19	U	1	-
S. ATLANTIC	207	227	-	32	35	10	218	163	-	51	20
Del.	-	4	-	-	-	-	5	-	-	-	-
Md.	19	38	-	7	3	1	49	52	-	-	1
D.C.	-	1	-	-	2	-	1	-	-	-	-
Va.	35	28	-	5	8	7	28	13	-	-	-
W. Va.	8	4	-	-	-	-	1	1	-	-	-
N.C.	29	28	-	5	8	-	51	45	-	42	19
S.C.	15	31	-	10	3	-	19	8	-	7	-
Ga.	36	43	-	2	1	-	20	16	-	-	-
Fla.	65	50	-	3	10	2	44	28	-	2	-
E.S. CENTRAL	92	110	-	6	9	1	47	55	-	4	2
Ky.	20	20	-	-	-	-	19	13	-	1	-
Tenn.	39	42	-	2	-	1	15	27	-	-	-
Ala.	26	29	-	2	7	-	12	13	-	3	2
Miss.	7	19	-	2	2	-	1	2	-	-	-
W.S. CENTRAL	87	159	-	20	30	4	123	87	-	4	4
Ark.	9	27	-	1	-	-	10	10	-	-	-
La.	27	53	-	3	7	-	3	5	-	-	-
Okla.	21	22	-	-	1	-	6	8	-	-	-
Tex.	30	57	-	16	22	4	104	64	-	4	4
MOUNTAIN	75	91	-	14	10	13	424	382	-	2	15
Mont.	1	2	-	1	-	2	11	2	-	-	-
Idaho	6	8	-	-	1	-	42	104	-	-	-
Wyo.	-	3	-	1	-	-	1	2	-	-	-
Colo.	24	22	-	1	3	6	231	134	-	1	-
N. Mex.	7	12	-	1	N	3	81	42	-	-	-
Ariz.	27	29	-	3	-	2	43	60	-	1	13
Utah	7	10	U	4	3	U	9	36	U	-	1
Nev.	3	5	U	3	3	U	6	2	U	-	1
PACIFIC	274	263	1	86	66	21	540	1,085	-	8	4
Wash.	34	40	1	4	2	5	186	508	-	-	-
Oreg.	37	50	N	N	N	1	58	21	-	-	-
Calif.	190	163	-	68	56	15	262	529	-	8	4
Alaska	5	6	-	7	1	-	12	3	-	-	-
Hawaii	8	4	-	7	7	-	22	24	-	-	-
Guam	-	1	U	-	1	U	-	1	U	-	-
P.R.	5	9	-	-	-	-	1	13	-	-	-
V.I.	-	U	U	-	U	U	-	U	U	-	U
Amer. Samoa	-	U	U	-	U	U	-	U	U	-	U
C.N.M.I.	-	U	U	-	U	U	-	U	U	-	U

N: Not notifiable. U: Unavailable. -: No reported cases.

TABLE IV. Deaths in 122 U.S. cities,* week ending July 15, 2000 (28th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	474	360	74	30	8	2	52
Boston, Mass.	121	81	23	12	4	1	14
Bridgeport, Conn.	40	34	5	-	1	-	7
Cambridge, Mass.	14	10	2	2	-	-	-
Fall River, Mass.	40	33	5	2	-	-	1
Hartford, Conn.	U	U	U	U	U	U	U
Lowell, Mass.	16	11	2	3	-	-	1
Lynn, Mass.	5	4	-	-	1	-	-
New Bedford, Mass.	30	21	8	1	-	-	-
New Haven, Conn.	27	18	3	3	2	1	5
Providence, R.I.	30	26	4	-	-	-	-
Somerville, Mass.	3	2	1	-	-	-	-
Springfield, Mass.	41	34	5	2	-	-	6
Waterbury, Conn.	33	29	4	-	-	-	3
Worcester, Mass.	74	57	12	5	-	-	15
MID. ATLANTIC	2,206	1,531	431	170	38	35	134
Albany, N.Y.	39	31	6	2	-	-	4
Allentown, Pa.	U	U	U	U	U	U	U
Buffalo, N.Y.	105	78	18	6	1	2	11
Camden, N.J.	17	9	3	5	-	-	1
Elizabeth, N.J.	16	9	5	2	-	-	3
Erie, Pa.§	37	32	4	-	-	1	4
Jersey City, N.J.	38	29	5	4	-	-	-
New York City, N.Y.	1,150	785	233	93	23	15	47
Newark, N.J.	43	21	14	5	2	1	1
Paterson, N.J.	21	15	3	2	1	-	1
Philadelphia, Pa.	273	167	61	32	5	8	19
Pittsburgh, Pa.§	78	54	17	2	2	3	11
Reading, Pa.	42	35	5	2	-	-	2
Rochester, N.Y.	127	101	20	4	2	-	7
Schenectady, N.Y.	24	17	6	1	-	-	1
Scranton, Pa.§	26	19	5	2	-	-	-
Syracuse, N.Y.	124	94	21	3	1	5	20
Trenton, N.J.	28	21	6	2	-	-	1
Utica, N.Y.	18	14	-	3	1	-	1
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	2,048	1,375	408	148	53	64	142
Akron, Ohio	64	41	14	3	2	4	3
Canton, Ohio	36	29	4	1	1	1	3
Chicago, Ill.	387	229	88	46	10	14	43
Cincinnati, Ohio	78	47	16	5	2	8	6
Cleveland, Ohio	130	84	31	7	4	4	4
Columbus, Ohio	189	140	35	6	4	4	9
Dayton, Ohio	U	U	U	U	U	U	U
Detroit, Mich.	203	112	58	19	8	6	5
Evansville, Ind.	45	35	7	2	-	1	7
Fort Wayne, Ind.	61	48	10	3	-	-	7
Gary, Ind.	19	10	3	3	1	2	-
Grand Rapids, Mich.	62	46	5	7	1	3	7
Indianapolis, Ind.	277	192	52	21	5	7	22
Lansing, Mich.	38	30	4	1	2	1	2
Milwaukee, Wis.	141	102	24	8	5	2	10
Peoria, Ill.	58	41	12	2	2	1	3
Rockford, Ill.	40	32	7	1	-	-	1
South Bend, Ind.	51	39	9	2	1	-	3
Toledo, Ohio	100	65	19	10	3	3	6
Youngstown, Ohio	69	53	10	1	2	3	1
W.N. CENTRAL	665	483	108	42	20	12	44
Des Moines, Iowa	101	84	8	5	2	2	14
Duluth, Minn.	U	U	U	U	U	U	U
Kansas City, Kans.	3	-	3	-	-	-	-
Kansas City, Mo.	56	40	7	5	2	2	2
Lincoln, Nebr.	48	39	7	2	-	-	4
Minneapolis, Minn.	173	131	25	11	3	3	13
Omaha, Nebr.	101	68	22	5	5	1	7
St. Louis, Mo.	88	49	21	9	6	3	-
St. Paul, Minn.	75	59	12	4	-	-	3
Wichita, Kans.	20	13	3	1	2	1	1
S. ATLANTIC	1,130	733	233	101	37	23	80
Atlanta, Ga.	U	U	U	U	U	U	U
Baltimore, Md.	209	124	39	34	9	3	19
Charlotte, N.C.	115	78	23	6	4	4	13
Jacksonville, Fla.	173	119	42	8	3	1	19
Miami, Fla.	92	61	15	9	4	2	8
Norfolk, Va.	72	47	17	2	2	4	5
Richmond, Va.	75	44	23	5	-	3	2
Savannah, Ga.	44	28	9	5	2	-	3
St. Petersburg, Fla.	53	41	7	1	4	-	1
Tampa, Fla.	197	137	29	20	4	5	9
Washington, D.C.	100	54	29	11	5	1	1
Wilmington, Del.	U	U	U	U	U	U	U
E.S. CENTRAL	906	581	197	70	33	24	54
Birmingham, Ala.	193	119	47	18	3	5	11
Chattanooga, Tenn.	96	63	15	7	9	2	5
Knoxville, Tenn.	88	59	20	4	3	2	1
Lexington, Ky.	61	38	18	3	1	1	3
Memphis, Tenn.	194	123	41	12	11	7	11
Mobile, Ala.	64	46	11	5	1	1	3
Montgomery, Ala.	58	43	13	2	-	-	14
Nashville, Tenn.	152	90	32	19	5	6	6
W.S. CENTRAL	1,566	986	339	114	76	49	96
Austin, Tex.	101	72	23	3	1	2	6
Baton Rouge, La.	46	35	5	-	2	4	3
Corpus Christi, Tex.	64	44	13	3	3	1	3
Dallas, Tex.	226	131	56	24	8	7	12
El Paso, Tex.	90	59	18	6	3	4	6
Ft. Worth, Tex.	118	80	25	4	5	4	15
Houston, Tex.	383	227	94	40	13	9	25
Little Rock, Ark.	65	51	10	-	3	1	2
New Orleans, La.	94	37	16	7	26	6	6
San Antonio, Tex.	229	155	49	16	7	2	9
Shreveport, La.	25	19	2	1	2	1	7
Tulsa, Okla.	125	76	28	10	3	8	2
MOUNTAIN	985	642	186	81	27	19	60
Albuquerque, N.M.	99	73	15	9	1	1	8
Boise, Idaho	35	30	4	-	-	1	2
Colo. Springs, Colo.	63	43	13	5	1	1	3
Denver, Colo.	94	62	20	8	2	2	8
Las Vegas, Nev.	196	125	46	15	8	2	12
Ogden, Utah	30	21	5	3	-	1	2
Phoenix, Ariz.	156	94	31	20	6	5	9
Pueblo, Colo.	16	14	2	-	-	-	2
Salt Lake City, Utah	103	61	18	11	8	5	6
Tucson, Ariz.	163	119	32	10	1	1	8
PACIFIC	1,975	1,397	384	118	46	28	108
Berkeley, Calif.	18	14	3	1	-	-	1
Fresno, Calif.	127	83	23	10	5	6	-
Glendale, Calif.	38	29	9	-	-	-	3
Honolulu, Hawaii	77	52	20	1	3	1	4
Long Beach, Calif.	57	47	5	4	1	-	10
Los Angeles, Calif.	710	482	144	51	21	12	42
Pasadena, Calif.	21	18	3	-	-	-	-
Portland, Oreg.	65	48	8	6	2	1	4
Sacramento, Calif.	128	95	29	2	1	1	9
San Diego, Calif.	171	120	31	11	6	2	12
San Francisco, Calif.	U	U	U	U	U	U	U
San Jose, Calif.	214	153	41	17	1	2	9
Santa Cruz, Calif.	40	31	8	1	-	-	4
Seattle, Wash.	146	104	31	6	2	3	2
Spokane, Wash.	51	41	8	-	2	-	3
Tacoma, Wash.	112	80	21	8	2	-	5
TOTAL	11,925¶	8,088	2,360	874	338	256	770

U: Unavailable. -:No reported cases.
*Mortality data in this table are voluntarily reported from 122 cities in the United States, most of which have populations of ≥100,000. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.
†Pneumonia and influenza.
§Because of changes in reporting methods in this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.
¶Total includes unknown ages.

Notice to Readers — Continued

thimerosal in vaccines discontinued this practice because of concerns about thimerosal (*1*). Some of these hospitals did not resume routine vaccination at birth even after hepatitis B vaccines that do not contain thimerosal as a preservative became available (CDC, unpublished data, 2000). Preservative-free hepatitis B vaccines are now widely available, and efforts should be made to reintroduce routine hepatitis B vaccination policies for all newborn infants in hospitals in which these policies and practices have been discontinued.

References

1. CDC. Availability of hepatitis B vaccine that does not contain thimerosal as a preservative. MMWR 1999;48:780–2.
2. CDC. Implementation guidance for immunization grantees during the transition period to vaccines without thimerosal, CDC, July 14, 1999. Available at http://www.cdc.gov/nip/news/thimerosal-guidance.htm. Accessed July 14, 2000.
3. CDC. Summary of the joint statement on thimerosal in vaccines. MMWR 2000;49:622,631.
4. Advisory Committee on Immunization Practices. Hepatitis B virus: a comprehensive strategy for eliminating transmission in the United States through universal childhood vaccination. MMWR 1991;40(no. RR-13).

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